

Application No.: 10/776,344Docket No.: 4620-005**ABSTRACT**

~~The invention relates to one kind of wastewater treatment bioreactor[. An], an aeration zone and a settle zone are provided in the reactor, the aeration device is located above the aeration zone, and a barrier and a gap are arranged between the aeration zone and the settle zone. It has many advantages: high oxidation rate in mixed liquid, high oxygen utilization rate of 40-50%, large volume load, short hydraulic retention time, run as activated sludge system, simple structure, low building cost, better solid liquid separation effect, little surplus sludge produced, compact microorganism grains in mixed wastewater, and great settle capability. By comparison with other devices and technologies for wastewater treatment, the surplus sludge produced in degradation of 1 kg BOD declines by about 40 percent if the invention is used, which greatly reduces the amount of sludge for treatment.~~